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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/601,887	10/03/2000	Frederic Amiche	RN98026	5298

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EXAMINER	
PIERCE, JEREMY R	

ART UNIT	PAPER NUMBER
1771	8

DATE MAILED: 11/21/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/601,887	AMICHE ET AL.	
	Examiner	Art Unit	
	Jeremy R. Pierce	1771	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 01 November 2002 .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 37-74 is/are pending in the application.

4a) Of the above claim(s) 44-46,58-62 and 67-74 is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 37-43,47-57 and 63-66 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of claims 37-66 in Paper No. 7 is acknowledged. Applicant's election of cellulosic microfibrils as the microfibrils species and "oxides" as the mineral particles is also acknowledged. Applicant's election of "osides oligomers" in claim 55 is also acknowledged. Claims 37-43, 47-57, and 63-66 are now considered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 43 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 43 recites the limitation "cellulose microfibrils" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 37-39, 47-50, 56, 57, and 64-66 are rejected under 35 U.S.C. 102(b) as being anticipated by Gregory et al. (U.S. Patent No. 4,952,278).

Gregory et al. disclose the combination of expanded fiber and an opacifying mineral pigment in paper products (column 1, lines 46-50). The expanded fiber can be cellulose microfibrils having a diameter of about 10-20 nm (column 2, lines 1-4). With regard to claim 50, the microfibrils can be made from wood pulp (column 5, line 20). With regard to claims 56 and 57, the mineral pigment can be titanium dioxide (column 10, line 20). With regard to claims 64 and 65, the pigment may be present from 1-35% by weight in the paper and the microfibrils may be present from 1-25% by weight of the paper (column 11, lines 2-20). Thus, Gregory et al. teach the claimed combination of between 1 and 10 g of microfibrils with 100 g of mineral particles. With regard to claim 66, the microfibrils and mineral pigment are wet-laid and then dried (column 11, line 61 –column 13, line 12).

6. Claims 37, 38, 40-42, 47, 64, and 65 are rejected under 35 U.S.C. 102(b) as being anticipated by Awane et al. (English Translation to Japanese Application 61-7374).

Awane et al. disclose rubber material that is reinforced with mineral filler and inorganic short fibers (page 5, lines 7-19). The length of the fiber is between 10 microns and 3 mm. The ratio of length to diameter of the fiber is between 10 and 500. With regard to claims 64 and 65, the filler is present in 20 parts by weight of the rubber, and the fibers are present in an amount of 1 to 40 parts by weight of the rubber. Therefore,

there can be as little as 5 parts by weight of fibers to every 100 parts by weight of rubber.

Claim Rejections - 35 USC § 102/103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 40-42 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Gregory et al.

Gregory et al. do not disclose the length of the microfibrils, so calculation of the ratio of the length of the fibers divided by the diameter of the fibers is not possible. However, it is clear from the specification of the Gregory et al. reference that the microfibrils have substantial length. The mechanical expansion of the fibers into individualized microfibrils having a high chain length relative to particulate, powdered, or finely chopped fibrous cellulose (column 7, lines 1-10). The microfibrils have a fibrous form that is meant to be longer than finely chopped fibers. It would be inherent that the fibers would have a length at least 100 times longer than the diameter of 10 nm. If not inherent, it would have been obvious to one having ordinary skill in the art to provide fibers with lengths at least 100 times the size of the diameter in order to provide sufficient strength to the fibers, as desired by Gregory et al. (column 7, line 9). With

regard to claim 42, the length of the fibers need not exceed 30 microns to be 100 times the size of the 10 nm diameter.

Claim Rejections - 35 USC § 103

9. Claims 37-42, 47-50, 56, 57, and 63-66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaliski (U.S. Patent No. 5,312,484) in view of Kaliski (U.S. Patent No. 5,240,561).

The '484 patent discloses cellulosic microfibrils used in combination with various particulate material (column 14, lines 3-20). The '484 patent does not disclose the diameter of the microfibrils, but does disclose them to be manufactured by the same process described in the '561 patent (column 38, lines 44-46). The '561 patent teaches the cellulosic microfibrils to have a length ranging from 10 to 200 microns with a length to diameter ratio is 10 to 1000 times higher than that of fiber fines (column 33, line 68 – column 34, line 12). Since the '484 patent describe the microfibrils to have a length of 1 to 10 microns, it would have been obvious to person having ordinary skill in the art, if not already inherent, to provide cellulosic microfibrils with a diameter less than 0.5 microns and with a diameter between 0.5 and 10 nm, since the '561 patent teaches the desirability of a high ratio of length to diameter of the cellulosic microfibrils. With regard to claims 56 and 57, one of the mineral particles is titanium dioxide (column 13, lines 61-62). With regard to claim 63, and absorbent particle material is present with a surface area larger than 100 m^2/g (column 14, lines 5-7). With regard to claims 64 and 65, the microfibrils are present in an amount of 0.1 to 2% by weight, and the mineral

particles can be present from 0.5 to 95% by weight (column 14, lines 3-4). With regard to claim 66, the composite is created in a slurry and then dried (column 27, lines 38-52).

10. Claim 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gregory et al. in view of Myers (U.S. Patent No. 4,617,353) or over Kaliski et al. in view of Kaliski et al. as set forth in section 9 above and further in view of Myers.

Neither Gregory et al. nor the Kaliski et al. patents disclose coating the fibers with polypyrrole. Myers teaches adding polypyrrole to paper products in order to make the conductive (column 2, lines 3-23). It would have been obvious to one having ordinary skill in the art to add polypyrrole to the microfibrils of Gregory et al. or the Kaliski et al. patents in order to create paper which is conductive and less prone to static.

11. Claim 51 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gregory et al. in view of Chen et al. (U.S. Patent No. 5,817,381) or over Kaliski et al. in view of Kaliski et al. as set forth in section 9 above and further in view of Chen et al.

Neither Gregory et al. nor the Kaliski et al. patents disclose the degree of crystallinity of the cellulose microfibrils. Chen et al. disclose cellulosic microfibrils used in paper making process (column 2, lines 12-31). Chen et al. teach the important features of crystallinity of cellulose are that crystalline areas absorb water poorly and high crystalline areas result in increased elasticity and strength (column 14, lines 8-11). It would have been obvious to one having ordinary skill in the art to create the paper products of Gregory et al. or the combination of the Kalinski et al. references with a degree of crystallinity of less than 50% in order to make the paper products more absorbent rather than strong, as taught by Chen et al.

12. Claim 52 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gregory et al. in view of Dinand et al. (U.S. Patent No. 5,964,983) or over Kaliski et al. in view of Kaliski et al. as set forth in section 9 above and further in view of Dinand et al.

Neither Gregory et al. nor the Kaliski et al. patents disclose using cellulose with 80% primary walls. Dinand et al. teach microfibrillated cellulose containing 80% primary walls (Abstract). Dinand et al. disclose the high primary wall content enables easier dissociation of the microfibrils (column 2, lines 25-36). Dinand et al. teach the microfibrils are useful in paper products (column 1, line 18). It would have been obvious to one having ordinary skill in the art to use cellulose with 80% primary wall in the paper of Gregory et al. or the combination of the Kaliski et al. references in order to use microfibrils that more easily dissociate, as taught by Dinand et al.

13. Claims 53-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gregory et al. in view of Herrick (U.S. Patent No. 4,481,076) or Kaliski et al. in view of Kaliski et al. as set forth in section 9 above and further in view of Herrick.

Neither Gregory et al. nor the Kaliski et al. patents disclose surface charging the cellulosic fibers. Herrick teaches using sugar acid and saccharic acid with microfibrillated cellulose in order to prevent the fibers from bonding to each other (column 2, lines 53-55). It would have been obvious to one having ordinary skill in the art to use acidic polysaccharides in the cellulosic microfibrils taught by Gregory et al. or the combination of the Kaliski et al references in order to create cellulosic microfibrils that do not bond to one another. With regard to claims 54 and 55, Herrick discloses

using polysaccharides, carboxylated cellulose, and disaccharides of sucrose, which would be an oside oligomer (column 2, lines 25-65).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy R. Pierce whose telephone number is (703) 605-4243. The examiner can normally be reached on Monday-Thursday 7-4:30 and alternate Fridays 7-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (703) 308-2414. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Jeremy R. Pierce
Examiner
Art Unit 1771

ELIZABETH M. COLE
PRIMARY EXAMINER

November 13, 2002